DOCUMENT RESUME

ED 387 670 CE 070 070

AUTHOR Gal, Iddo

TITLE Issues and Challenges in Adult Numeracy. NCAL

Brief.

INSTITUTION National Center on Adult Literacy, Philadelphia,

PA.

SPONS AGENCY Office of Educational Research and Improvement (ED),

Washington, DC.

REPORT NO NCAL-BP94-07 PUB DATE 10 Mar 95

NOTE 3p.; For the full report, see ED 366 746.

PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS Adult Basic Education; *Adult Literacy; *Educational

Needs; *Educational Practices; *Literacy Education;

*Numeracy; State of the Art Reviews; *Teacher

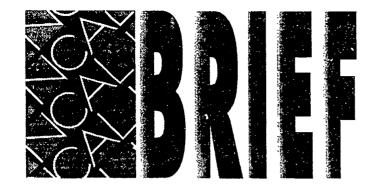
Qualifications

ABSTRACT

The current state of adult numeracy research and practice was examined. Data were collected from available literature and test data about adult numeracy instruction, as well as from telephone interviews with directors and teachers in 30 randomly selected adult education programs in three states. Among the key findings of the study were the following: (1) employers increasingly desire not only proficiency in the basic mathematical operations, but also broader general problem-solving skills and facility with communicating about quantitative applications; (2) despite growing recognition of the importance of numeracy, there is little evidence of full integration of mathematics education with adult literacy instruction or use of assessment methods that adequately evaluate the numerical skills needed in daily life; and (3) current literacy teachers need more preservice and inservice training in numeracy instruction and more effective instructional materials. It was concluded that full integration of numeracy instruction into adult literacy programs will require increased funding and staff development, infusion of mathematical training into specialized adult literacy programs, and reexamination of student assessment/placement and data reporting procedures. Efforts to upgrade teachers' numeracy teaching skills and systematic research on numeracy instruction techniques and workplace numeracy requirements were recommended. (MN)



^{*} Reproductions supplied by EDRS are the best that can be made from the original document.



Issues and Challenges in Adult Numeracy

Iddo Gal
National Center on Adult Literacy
University of Pennsylvania

Based on NCAL Technical Report TR93-15 DECEMBER 1993 53 pages, \$8.00 (ERIC No. ED 366 746)

BP94-07

MARCH 10, 1905

KEY FINDINGS:

- Employers increasingly desire quantitative skills that are broader than mere proficiency with the basic mathematical operations. They also look for general problem-solving skills and facility with communicating about quantitative applications.
- Despite growing recognition of the importance of numeracy, there is little evidence that math education is fully integrated with adult literacy instruction, or that assessment methods adequately test for the numerical skills that are important in daily life.
- Current adult literacy teachers, while dedicated and well intentioned, need more preservice and inservice training in numeracy instruction and more effective instructional materials.

KEY RECOMMENDATIONS:

- The necessary incorporation of numeracy instruction into adult literacy programs will first require

 (a) increased funding and staff development, (b) the addition of mathematical training into specialized adult literacy programs, including family literacy programs, and (c) a reexamination of assessment, placement, and reporting procedures.
- Upgrading the numeracy teaching skills of the current teaching force in adult literacy education requires the creation of updated instructional guides that incorporate the recent perspectives of employers as well as mathematics and science educators. Such guides also need to include curricular designs and propose teaching practices that maximize the transferability of classroom knowledge to everyday life.
- Systematic inquiries are needed to assess (a) how adults' informal experiences can be used to facilitate learning, (b) whether literacy programs have a positive effect on adult learners' attitudes toward mathematics and on their quantitative practices outside the classroom, and (c) what new workplace numeracy requirements imply for future curricula and teaching practices.

INTRODUCTION

Despite its apparent centrality in people's daily lives, the numeracy component of literacy has received little attention. What is more, current instructional practices may not fully meet adult learners' numeracy needs. This report helps fill the gap by surveying the current state of adult numeracy research and practice.

METHODOLOGY

The first part of the report reviews the sparse information available (state activity reports, ERIC data, and test data) about adult numeracy instruction and examines gaps in current instructional practices. In addition to published information, additional data

were obtained through phone interviews with directors and teachers in 30 randomly selected adult education programs in three states. The second part of the report examines numeracy based on the perspectives of three different stakeholder communities—employers, math and science educators, and assessment program developers. The third part of the report discusses key questions and issues about the nature of adult numeracy and the skills that adults will need in order to be considered "numerate." The fourth and final part of the report contains recommendations for practitioners, policymakers, and researchers on (a) recognizing the interrelation of numeracy and literacy, (b) incorporating numeracy instruction into literacy

U.S. DEPARTURE H.T. OF EDUCATION OF A PLAN AND A PLAN A

Minor changes have been made to
 more representation supply.

programs, and (c) improving the provision of numeracy education.

IMPLICATIONS

While official reports convey the impression that little math instruction takes place, field tours suggest that numeracy-related activities abound. Most of these, however, are not fully integrated with other types of literacy instruction, and this condition is likely to persist as long as definitions of literacy exclude numeracy.

Effective numeracy provision requires that numeracy be more adequately defined and that a consensus be reached on what specific skills should be emphasized and what are promising ways to develop them with adult learners. Unless such steps are taken, numeracy education is likely to continue and emphasize many outdated goals and teaching practices.

FURTHER READING

Carnevale, A. P., Gainer, L. J., & Meltzer, A. S. (1990). Workplace basics: The essential skills employers want. San Francisco: Jossey-Bass.

Foyster, J. (1990). Beyond the mathematics classroom: Numeracy on the job. In S. Willis (Ed.), *Being numerate: What counts* (pp. 119-137). Melbourne, Australia: Australian Council for Educational Research.

Harris, M. (Ed.). (1991). Schools, mathematics and work. Philadelphia, PA: Falmer Press.

National Research Council. (1989). Everybody counts: A report to the nation on the future of mathematics education. Washington, DC: National Academy Press.

To order hard copy of the full report, please specify report number, title, and price as listed on the front page of this Brief.

Payment: All orders must be prepaid (U.S. Dollars only, please). Make check or money orders PAYABLE TO "NCAL/UNIVERSITY OF PENNSYLVANIA." All sales are final. For further information, call NCAL Dissemination at 215-898-2100, (FAX) 215-898-9804, or (Email) ncal@literacy.upenn.edu.

Please allow 3 weeks for delivery. For foreign mail and special handling, contact NCAL Dissemination.

Send check and shipping information to:

NATIONAL CENTER ON ADULT LITERACY Dissemination

3910 Chestnut Street
University of Pennsylvania
Philadelphia, PA 19104-3111

To acquire an electronic copy of this report free of charge via NCAL's Internet Gopher, point your client at Itserver.literacv.upenn.edu.

